



## Learning Project 8

### Geometry – Area, Perimeter, and Volume

#### Introduction

This is the first of two Learning Projects that deals with Geometry. An interesting aspect is that we have taken some of the shapes the learner has seen in other Inquiry Activities (as a stimulus for different math concepts) and asked geometry questions about the shapes. For instance, the two rectangles in the variation of question 25 that are used here in Inquiry Activity 8-2 first appeared as part of a proportion problem in Inquiry Activity 6-3. The circle on a grid that was used in the coordinate plane problem in Inquiry Activity 7-1 now appears in Inquiry Activity 8-4, where the learner is asked to determine how to estimate the area of a circle by counting squares and partial squares on the grid.

We hope that asking different questions about similar shapes stimulates the learner to recognize all the different questions one can ask about a shape. This is similar to the questions asked in the very first Learning Project when the learner was repeatedly asked to discuss all the information a graph reveals in addition to the question being specifically asked in the problem.

You will note that the Inquiry Activities move in a progression. Inquiry Activity 8-1 involves perimeters of rectangles. Inquiry Activity 8-2 deals with area of rectangles. Inquiry Activity 8-3 covers area of a triangle in a situation that gives the area and asks the learner to find the length of one of the legs of the triangle (a solution that will use the algebra learners explored in Learning Project 4 to solve for the unknown in the geometric formula). Inquiry Activity 8-4 deals with the circumference and area of a circle. Both the circumference and area are discussed in one question, which is not a normal format of GED type questions. You may want to produce another Inquiry Activity in which area is treated separately.

Volume is not emphasized only because the PA version of the Practice Test used here does not have any problems with volume, though Inquiry Activity 8-3 deals with volume in the Extending step. This does not mean volume problems are not on the GED itself. You can introduce the volume of squares and rectangles in the Extending phases of appropriate Inquiry Activities or develop your own that explore this math concept and formula. We encourage use of manipulatives and/or real life models in any and all appropriate geometry problems.

